

**In the Claims:****Claims 1-31. (Canceled)**

32. **(Previously presented)** An eukaryotic expression vector comprising a nucleic acid encoding a human serum transferrin mutant, said encoded mutant having at least one of Asn413 and Asn611 of SEQ ID NO:2 mutated to an amino acid which does not allow glycosylation.

33. **(Previously presented)** An eukaryotic expression vector comprising a nucleic acid encoding a human serum transferrin C-terminal lobe mutant, said encoded mutant having at least one of Asn413 and Asn611 of SEQ ID NO:2 mutated to an amino acid which does not allow glycosylation.

34. **(Previously presented)** The vector of claim 33, wherein the encoded C-terminal lobe comprises amino acids 343-679 of SEQ ID NO:2.

35. **(Previously presented)** The vector of claim 32 or 33, wherein the encoded mutant has at least one of Asn413 and Asn611 of SEQ ID NO:2 mutated to an aspartic acid.

36. **(Previously presented)** The vector of claim 32 or 33, wherein the encoded mutant has Asn413 and Asn611 of SEQ ID NO:2 mutated.

37. **(Previously presented)** The vector of claim 36, wherein the encoded mutant has Asn413 and Asn611 of SEQ ID NO:2 mutated to aspartic acid.

38. **(Currently Amended)** An eukaryotic expression vector comprising a nucleic acid encoding a human serum transferrin mutant having a mutation in at least one amino acid residue selected from the group consisting of Asp63, Gly65, Tyr95, Tyr188, His249, Asp392, Tyr426, Tyr517 and His585 of SEQ ID NO:2, wherein the encoded mutant retains the ability to bind metal.

39. **(Currently Amended)** An eukaryotic expression vector comprising a nucleic acid encoding a human serum transferrin N-terminal lobe mutant having a mutation at ~~Asp63~~ or Gly65 of SEQ ID NO:2, wherein the encoded mutant retains the ability to bind metal.

40. **(Canceled)**

41. **(Canceled)**

42. **(Currently Amended)** The vector of claim 38 or 39, wherein the encoded mutant has Gly65 of SEQ ID NO:2 mutated.

43. **(Currently Amended)** The vector of claim 38 or 42, wherein the encoded mutant has Gly65 mutated to arginine.

44. **(Previously presented)** An eukaryotic expression vector comprising a nucleic acid encoding a human serum transferrin mutant having a mutation at Lys206 or His207 of SEQ ID NO:2, wherein the mutant has a stronger binding avidity for metal than wild-type human serum transferrin.

45. **(Previously presented)** An eukaryotic expression vector comprising a nucleic acid encoding a recombinant human serum transferrin N-terminal lobe mutant having a mutation at Lys206 or His207 of SEQ ID NO:2, wherein the mutant has a stronger binding avidity for metal than wild-type N-terminal lobe of human serum transferrin.

46. **(Previously presented)** The vector of claim 44 or 45, wherein the encoded mutant has Lys206 of SEQ ID NO:2 mutated.

47. **(Previously presented)** The vector of claim 46, wherein the encoded mutant has Lys206 mutated to glutamine.

48. **(Previously presented)** The vector of claim 44 or 45, wherein the encoded mutant has His207 of SEQ ID NO:2 mutated.

49. **(Previously presented)** The vector of claim 48, wherein the encoded mutant has His207 mutated to glutamic acid.

50. **(Previously presented)** An eukaryotic expression vector comprising a nucleic acid encoding a human serum transferrin mutant having a mutation at Lys206 and His207 of SEQ ID NO:2, wherein the mutant has a stronger binding avidity for metal than wild-type human serum transferrin.

51. **(Previously presented)** An eukaryotic expression vector comprising a nucleic acid encoding a human serum transferrin N-terminal lobe mutant having a mutation at Lys206 and His207 of SEQ ID NO:2, wherein the mutant has a stronger binding avidity for metal than wild-type N-terminal lobe of human serum transferrin.

52. **(Previously presented)** The vector of claim 50 or 51, wherein the encoded mutant has Lys206 mutated to glutamine and His207 mutated to glutamic acid.

53. **(Previously presented)** The vector of claim 38 or 44, wherein the encoded mutant has at least one of Asn413 and Asn611 of SEQ ID NO:2 mutated to amino acid which does not allow glycosylation.

54. **(Previously presented)** The vector of claim 53, wherein the encoded mutant has at least one of Asn413 and Asn611 mutated to aspartic acid.

55. **(Previously presented)** An eukaryotic cell line transfected with the vector of any one of claims 32, 33, 38, 39, 44 and 45.

56. **(Previously presented)** The cell line of claim 55 which is a baby hamster kidney cell line.

57. **(Currently Amended)** A method of producing functionally active human transferrin mutant full length human transferrin, or a C terminal portion or mutant thereof, comprising:

- a) culturing the eukaryotic cell of claim 55, under conditions conducive to expression of the encoded transferrin; and
- b) recovering the expressed transferrin.

58. **(Previously presented)** The method of claim 57, wherein the vector further comprises an inducible promoter of transferrin operably linked to the transferrin-encoding nucleic acid, said method further comprising inducing the promoter in order to induce expression of transferrin.

59. **(Previously presented)** The method of claim 58, wherein the promoter is the zinc inducible metallothionein promoter.

60. **(Previously presented)** The method of claim 59, wherein the vector is the plasmid pNUT.